

REMARKS

As an initial matter, Applicant would like to thank the Examiner for approving the Drawings submitted June 22, 2001, acknowledging Applicant's claim for foreign priority, and considering all of the references cited in the Information Disclosure Statement filed on September 24, 2001.

Claims 1, 2, 4-8 and 10-13 are pending in the application. Claims 3 and 9 have been canceled, claims 1, 2, 6-8 and 10-12 have been amended, and claim 13 has been newly added. Reconsideration of the rejection and allowance of the pending application in view of the following remarks are respectfully requested.

In the Office Action of November 4, 2004, the Examiner objected to the title of the present application as not being descriptive. In response, Applicant has amended the title to more clearly describe Applicant's invention.

In the Office Action, the Examiner also objected to the specification due to informalities. Applicant has amended the specification to address the Examiner's concerns and overcome the objection.

In the Office Action, the Examiner also objected to claim 9 due to informalities. This objection is moot at least because Applicant has cancelled claim 9.

The present invention relates to a digital still camera. The camera of the present invention includes, inter alia, a photographing optical system that forms a subject image

by capturing a subject, and a body to which the photographing optical system is connected. The camera also includes an image sensor provided in the body behind the photographing optical system along an optical axis defined by the photographing optical system. Light from the photographing optical system passes through a light-path space formed between the photographing optical system and the image sensor along the optical axis, and the subject image is formed on a light-receiving area of the image sensor by the light. The camera also includes a half mirror, provided in the light-space and inclined toward the photographing optical system, that directs the light from the photographing optical system toward the image sensor and along a focus detecting direction distinct from the optical axis. The camera also includes a mirror driver that temporarily moves the half mirror to a predetermined position such that the half mirror does not interrupt a light-path of the light directed from the photographing optical system to the light-receiving area. A phase difference focus detector is provided outside the light-path space and along the focus detecting direction. The camera also includes a recording processor that exposes the image sensor for a predetermined period and controls the mirror driver so as to temporarily move the half-mirror out of the light-path space while the image sensor is exposed.

In the Office Action, the Examiner rejected claims 1-4, 9, 10 and 12 under 35 U.S.C. §103(a) as being unpatentable over Utagawa (U.S. Patent No. 5,784,656) in view

of Goto (U.S. Patent No. 5,212,514). Applicant respectfully traverses the rejection for at least the following reasons.

In the camera of the present invention, the phase difference focus detector (which is superior to a contrast focus detector) is provided under the light-path space, and the half mirror is inclined toward the photographing optical system. To prevent “vignetting”, the half mirror is arranged so as to pass all of the light from the photographing optical system to the image sensor. This allows the camera to display the entire image to be photographed. Further, the recording processor controls the mirror driver so as to temporarily move the half mirror out of the light-path space while the image sensor is exposed. This movement of the half mirror prevents a decrease in the amount of light passing through the light-path space when photographing, which results in recording a good quality image.

Claims 1 and 12 recite a half-mirror inclined toward the photographing optical system and positioned such that all of the light directed from the photographing optical system substantially passes through the half-mirror, and a mirror driver that temporarily moves the half-mirror. These features, combined with the other claimed features of the invention, are not disclosed or suggested by Utagawa and Goto, in any proper combination.

Utagawa is directed to a camera, which includes an optical focus detection system

(140) arranged under a light path space, and a mirror (110). As the Examiner recognized in the Office Action, Utagawa's mirror does not move.

Goto is also directed to a camera. Although Goto's camera includes an instant-return mirror (3) that moves, the mirror is inclined towards the back of the camera in order to direct light upwards to a pentagonal prism (15). See Figures 9 and 10.

Furthermore, Goto does not disclose that the instant-return mirror is large enough to transmit all of the light from the photographing optical system to the rear of the camera. Thus, the instant-return mirror of Goto might well cause a vignetting and a diffused reflection to occur.

In the Office Action, the Examiner asserted that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Utagawa with the teaching of Goto, such that the mirror moves, so that all of the incident light is captured during a photographing operation. However, Applicant respectfully submits that it would not have been obvious to modify Utagawa to have a movable mirror, because Utagawa explicitly teaches away from having a movable mirror.

In the "Description of Related Art" section of the Utagawa reference (see col. 1), Utagawa describes prior art cameras having movable mirrors. In col. 1, lines 27-31, Utagawa states that successive exposures cannot be made quickly in such cameras having movable mirrors. Thus, Utagawa's camera was intentionally designed to avoid the use of

movable mirrors, and the Examiner's proposed combination destroys this explicitly disclosed feature of Utagawa.

Further, the mirrors of Utagawa and Goto are inclined in opposite directions. There is no teaching to substitute a movable mirror for the stationary mirror of Utagawa, but to incline it in an opposite direction than as disclosed by Goto.

For at least the above reasons, Applicant submits that the combination of Utagawa and Goto is improper, and that the proposed combination does not result in Applicant's invention.

Furthermore, the Van Heyningen et al. (U.S. Patent No. 4,949,117), Hirasawa (U.S. Patent No. 6,091,450), and Konno et al. (U.S. Patent No. 6,157,781) references relied on by the Examiner for rejecting the dependent claims do not make up for the deficiencies of the Utagawa and Goto references. Accordingly, Applicant respectfully requests withdrawal of the rejection. Dependent claims 2, 4-8, 10, 11 and 13 are also submitted to be in condition for allowance at least in view of their dependence on claim 1, as well as based upon their own recitations.

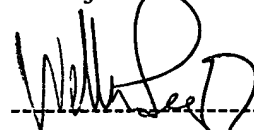
Based on the above, it is respectfully submitted that this application is now in condition for allowance, and a Notice of Allowance is respectfully requested.

SUMMARY AND CONCLUSION

Entry and consideration of the present amendment, reconsideration of the outstanding Office Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate. Applicant has made a sincere effort to place the present invention in condition for allowance and believes that he has now done so.

Should the Examiner have any questions or comments regarding this response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
Tetsuji SHONO



William Pieprz
Reg. No. 33,630

Bruce H. Bernstein
Reg. No. 29,027

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GREENBLUM & BERNSTEIN, P.L.C.
1941 Roland Clarke Place
Reston, VA 20191
(703) 716-1191